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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,350	09/30/2003	Hong Po	NU-206WO-1	5783
38731	7590	04/25/2006	EXAMINER	
NUFERN 7 AIRPORT PARK ROAD EAST GRANBY, CT 06026			KANG, JULIANA K	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/675,350

Applicant(s)

PO, HONG

Examiner

Juliana K. Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 47 is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☒ Claim(s) 43-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/30/03, 4/8/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's communication filed on February 13, 2006 has been carefully review by the Examiner. Applicant's argument is persuasive and the Restriction requirement is hereby withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 34 and 38-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 34 recites the limitation "the at least one additional fiber" In line 1. There is insufficient antecedent basis for this limitation in the claim. It appears that claim 34 should be dependent on claim 33. For the examining purpose, claim 34 will be examined as it is dependent on claim 33.

Claims 38 and 42 recite the limitation "said inner region" in line 4 (claim 38) and line 5 (claim 42). There is insufficient antecedent basis for this limitation in the claim. For the examining purpose, "said inner region" will be interpreted, as a first region that is recited in claim 38 in line 2 because it appears that there is not other region between the first region and the multimode core. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8, 10, 14, 15-25, 27 and 37-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Krivoshlykov (U.S. Patent 6,018,533, submitted by applicant).

Regarding claims 1-6, Krivoshlykov discloses a multimode optical fiber comprising: a first region (center region indicated as 1 in Fig. 1a); a multi-core ring-shaped core surrounding the first region (indicated as 2 in Fig. 1a), the core comprising a silica material and a rare earth metal ions (see column 1 lines 33-38, see claims 1, 4, 6 and 10 of Krivoshlykov); and a first cladding (the region indicated as nc1 in Fig. 1a) surrounding the core.

Regarding claims 8 and 10, Krivoshlykov shows claimed index profile in Fig. 1a.

Regarding claims 15-17, 19-25, 27 and 37, Krivoshlykov further discloses coupling the multimode to a single mode optical fiber (see abstract and column 4 lines 40-41).

Regarding claim 18, Krivoshlykov discloses an energy source (see claim 1 of Krivoshlykov).

Regarding claims 38-41, Krivoshlykov discloses that the pump light from semiconductor sources usually couples into a highly multimode doped cladding region that guides the pump radiation (see column 1 lines 50-52). Krivoshlykov further

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discloses applying the multimode optical fiber using standard methods for pumping the multimode optical fiber (see column 6 lines 25-35). Since Krivoshlykov discloses the core that is doped with active material it inherently is capable of focusing energy at locations spaced along the length of the fiber.

Regarding claim 42, as described above Krivoshlykov discloses the claimed invention including

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krivoshlykov.**

Regarding claims 31 and 32, as described above Krivoshlykov disclose the active core that is pumped by an external power source (see claim 1 of Krivoshlykov) however Krivoshlykov does not explicitly teach whether the pumping configuration is a side or end pump configuration. A side pump configuration and an end pump configuration are well known in the art. Thus applying any well known pump configuration in Krivoshlykov would have been obvious to one having ordinary skill in the art at the time the invention was made to pump the active core.

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8. Claims 7, 9, 11-14, 26, 28-30 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krivoshlykov and further in view of Fermann et al (U.S. Patent 6,954,575 B2).

Regarding claims 11-14 and 28-30, as described above Krivoshlykov disclose the claimed invention except a second cladding layer. Fermann et al teach a fiber laser having a polymer coating layer with a lower refractive index than the cladding layer (see column 10 lines 18-21). Providing an extra outer layer protects the fiber. Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply additional coating layer in Krivoshlykov as taught by Fermann et al to protect the optical fiber.

Regarding claims 33-34, Krivoshlykov teaches connecting a multimode optical fiber to standard single-mode optical fiber networks (see abstract). Thus coupling additional single mode to the multimode optical fiber would have been obvious to one having ordinary skill in the art to transmit signals to optical fiber networks.

Regarding claims 7, 9 and 26, Krivoshlykov teaches the claimed invention except for the first region comprising a silica 20 material and the first cladding comprising a silica material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use silica 20 material for the first region and silica material for the first cladding, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice,

Allowable Subject Matter

9. Claim 47 is allowed.

The following is a statement of reasons for the indication of allowable subject matter: there is no prior art made of record that teaches or reasonably suggests the claimed optical apparatus comprising a second optical fiber having a core wherein the core is connected to only a part of the cross section of the core of the first optical fiber as set forth in claim 47 along with other claimed features.

Claims 43-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There is no prior art made of record that teaches or reasonably suggests the claimed optical apparatus comprising a second optical fiber having a core wherein the core is connected to only a part of the cross section of the core of the first optical fiber as set forth in claim 42 along with other claimed features.

Conclusion

10. The prior art documents submitted by applicant have been considered and made of record (note the attached copy of form PTO-1449).

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Diening et al (U.S. Patent 6,650,663 B1) teach a diode pumped fiber laser having the claimed index profile (see Fig. 3b).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JULIANA KANG
PRIMARY EXAMINER



4/22/06